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Water quality—Determination of chromium (VI) —

1.5 Diphenylcarbazide spectrophotometric method

水质 六价铬的测定

二苯碳酰二肼分光光度法

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Water quality—Determination of chromium (VI) —

1.5 Diphenylcarbazide spectrophotometric method

1 Scope of application

1.1 This standard is suitable for the determination of chromium (VI) in surface water and industrial sewage.

1.2 Range of determination

The volume of the sample is 50mL. Using the cuvette of 30 mm optical path, the minimum detectable amount is 0.2 µg chromium (VI) and the minimum detectable concentration is 0.004 mg/L. When using the cuvette of 10 mm optical path, the detectable ceiling concentration is 1.0 mg/L.

1.3 Interference

Color development is yellow when iron content is more than 1 mg/L. Molybdenum (VI) and mercury can also react with color-developing agent and generate colored compound. But at the color-developing acidity of this method, the reaction is insensitive. The molybdenum and mercury concentration of 200 mg/L do not interfere determination. Vanadium will interfere color development when the content is more than 4 mg/L. However, the color will fade 10 min after reaction between the vanadium and the color-developing agent.

2 Principle

In acid solution, chromium (VI) reacts with diphenylcarbazide to generate red purple compound which can be conducted with spectrophotometric determination at the wavelength of 540 nm.

3 Reagent

In the determination process, unless otherwise stated, analytical reagents and distilled water or water with equivalent purity in line with national standards or professional standards shall be used, and all reagents shall not contain chromium.

3.1 Acetone:

3.2 Sulfuric acid

3.2.1 1 + 1 sulfuric acid solution.

Slowly add sulfuric acid (H_2SO_4 , $\rho=1.84$ g/mL, guaranteed reagent) into the water of the same

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